We claim:

1. A polypeptide selected from the group consisting of SEQ ID NOs: 1 to 148, and functionally equivalent fragments, derivatives, and variants thereof.

2. The polypeptide of claim 1, wherein said polypeptide is selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 112, 113, 114, 115, and 116.

3. An antibody which binds specifically to the polypeptide of claim 1.

4. The antibody of claim 3, wherein said antibody is a polyclonal antibody.

5. The antibody of claim 3, wherein said antibody is a monoclonal antibody.

6. An antibody which binds specifically to the polyethylene glycol.

7. The antibody of claim 6, wherein said antibody is a polyclonal antibody.

8. The antibody of claim 6, wherein said antibody is a monoclonal antibody.

9. A method for detecting a polypeptide selected from the group consisting of SEQ ID NOs: 1 to 148 in a sample comprising:

   a. contacting the sample with an antibody of claim 3 or claim 6,
   b. detecting said antibody, and
   c. correlating the detection of antibody with the amount of polypeptide in the sample.

10. A method for detecting a polypeptide selected from the group consisting of SEQ ID NOs: 1 to 148 in a sample comprising:

   a. contacting the sample with a first antibody of claim 3 or claim 6,
   b. contacting the sample with a second labeled antibody, wherein the second antibody binds to the first antibody,
   c. detecting the label, and
   d. correlating the detection of label with the amount of polypeptide in the sample.

11. A kit for detecting a polypeptide selected from the group consisting of SEQ ID NOs: 1 to 148 in a sample comprising: a first antibody of claim 3 or claim 6 and a second antibody wherein the second antibody binds to the first antibody.

12. A pharmaceutical composition comprising a therapeutically effective amount of a polypeptide of claim 1, or functionally equivalent fragments, derivatives, and variants thereof, in combination with a pharmaceutically acceptable carrier.

13. The pharmaceutical composition of claim 12, wherein said polypeptide is selected from the

group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 112, 113, 114, 115, and 116.

14. A pharmaceutical composition comprising a therapeutically effective amount of a polypeptide of claim 1, or functionally equivalent fragments, derivatives, and variants thereof, in combination with a pharmaceutically acceptable carrier and one or more pharmaceutical agents.

15. The pharmaceutical composition of claim 14, wherein said pharmaceutical agent is selected from the group consisting of PPAR ligands, insulin secretagogues, sulfonylurea drugs, α-glucosidase inhibitors, insulin sensitizers, hepatic glucose output lowering compounds, insulin and insulin derivatives, biguanides, protein tyrosine phosphatase-1B, dipeptidyl peptidase IV, 11beta-HSD inhibitors, anti-obesity drugs, HMG-CoA reductase inhibitors, nicotinic acid, lipid lowering drugs, ACAT inhibitors, bile acid sequestrants, bile acid reuptake inhibitors, microsomal triglyceride transport inhibitors, fibric acid derivatives, β-blockers, ACE inhibitors, calcium channel blockers, diuretics, renin inhibitors, AT-1 receptor antagonists, ET receptor antagonists, neutral endopeptidase inhibitors, vasopepsidase inhibitors, and nitrates.

16. A composition comprising an effective amount of a polypeptide of claim 1, or functionally equivalent fragments, derivatives, and variants thereof, in combination with an inert carrier.

17. A method of treating diabetes comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

18. The method of claim 17, wherein said diabetes is selected from the group consisting of type 2 diabetes, maturity-onset diabetes of the young, latent autoimmune diabetes adult, and gestational diabetes.

19. A method of treating Syndrome X comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

20. A method of treating diabetes-related disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

21. The method of claim 20, wherein said diabetes-related disorder is selected from the group consisting of hyperglycemia, hyperinsulinemia, impaired glucose tolerance, impaired fasting glucose, dyslipidemia, hypertriglyceridemia, and insulin resistance.

22. A method of treating diabetes comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 in combination with one

or more pharmaceutical agents.

23. The method of claim 20, wherein said pharmaceutical agent is selected from the group consisting of PPAR agonists, sulfonylurea drugs, non-sulfonylurea secretagogues, α-glucosidase inhibitors, insulin sensitizers, insulin secretagogues, hepatic glucose output lowering compounds, insulin, and anti-obesity agents.

24. The method of claim 23, wherein said diabetes is selected from the group consisting of type 2 diabetes, maturity-onset diabetes of the young, latent autoimmune diabetes adult, and gestational diabetes.

25. A method of treating Syndrome X comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 in combination with one or more pharmaceutical agents.

26. The method of claim 25, wherein said pharmaceutical agent is selected from the group consisting of PPAR agonists, sulfonylurea drugs, non-sulfonylurea secretagogues, α-glucosidase inhibitors, insulin sensitizers, insulin secretagogues, hepatic glucose output lowering compounds, insulin, and anti-obesity agents.

27. A method of treating diabetes-related disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 in combination with one or more pharmaceutical agents.

28. The method of claim 27, wherein said diabetes-related disorder is selected from the group consisting of hyperglycemia, hyperinsulinemia, impaired glucose tolerance, impaired fasting glucose, dyslipidemia, hypertriglyceridemia, and insulin resistance.

29. The method of claim 28, wherein said pharmaceutical agent is selected from the group consisting of PPAR agonists, sulfonylurea drugs, non-sulfonylurea secretagogues, α-glucosidase inhibitors, insulin sensitizers, insulin secretagogues, hepatic glucose output lowering compounds, insulin, and anti-obesity agents.

30. A method of treating diabetes, Syndrome X, or diabetes-related disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 in combination with one or more agents selected from the group consisting of HMG-CoA reductase inhibitors, nicotinic acid, lipid lowering drugs, ACAT inhibitors, bile acid sequestrants, bile acid reuptake inhibitors, microsomal triglyceride transport inhibitors, fibric acid derivatives, β-blockers, ACE inhibitors, calcium channel blockers, diuretics, renin inhibitors, AT-1 receptor antagonists, ET receptor antagonists, neutral endopeptidase inhibitors, vasopepsidase inhibitors, and nitrates.

31. The method of claim 30, wherein said diabetes-related disorder is selected from the group consisting of hyperglycemia, hyperinsulinemia, impaired glucose tolerance, impaired fasting glucose, dyslipidemia, hypertriglyceridemia, and insulin resistance.

32. The method of any one of claims 22 to 31, wherein the polypeptide of claim 1 and one or more pharmaceutical agents are administered as a single pharmaceutical dosage formulation.

33. A method of treating or preventing secondary causes of diabetes comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

34. The method of claim 33, wherein said secondary cause is selected from the group consisting of glucocorticoid excess, growth hormone excess, pheochromocytoma, and drug-induced diabetes.

35. A method of treating or preventing secondary causes of diabetes comprising the step of administering a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 in combination with one or more pharmaceutical agents.

36. The method of claim 35, wherein said pharmaceutical agent is selected from the group consisting of PPAR agonists, sulfonylurea drugs, non-sulfonylurea secretagogues, α-glucosidase inhibitors, insulin sensitizers, insulin secretagogues, hepatic glucose output lowering compounds, insulin, and anti-obesity agents.

37. A method of treating respiratory disease comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

38. A method of treating obesity comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

39. A method of treating cardiovascular disease comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

40. The method of claim 39, wherein said cardiovascular disease is selected from atherosclerosis, coronary heart disease, coronary artery disease, and hypertension.

41. A method of treating disorders of lipid and carbohydrate metabolism comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

42. A method of treating sleep disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

43. A method of treating male reproductive disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

44. A method of treating growth disorders or disorders of energy homeostasis comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

45. A method of treating immune diseases comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

46. A method of treating autoimmune diseases comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

47. A method of treating acute and chronic inflammatory diseases comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

48. A method of treating septic shock comprising the step of administering to a subject in need thereof a therapeutically effective amount of a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

49. A method of stimulating insulin release in a glucose-dependent manner in a subject in need thereof by administering to said subject a polypeptide of claim 1 or a pharmaceutical composition of claim 12.

50. Polypeptides according to claim 1 for the treatment and/or prophylaxis of diabetes and diabetes-related disorders.

51. Medicament containing at least one polypeptide according to claim 1 in combination with at least one pharmaceutically acceptable, pharmaceutically safe carrier or excipient.

52. Use of polypeptides according to claim 1 for manufacturing a medicament for the treatment and/or prophylaxis of diabetes and diabetes-related disorders.

53. Medicament according to claim 51 for the treatment and/or prophylaxis of diabetes.

| SEQ ID NO | Sequence |
|---|---|
| 1 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKQKRY |
| 2 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKRY |
| 3 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKQK |
| 4 | Ac-HTEAVFTDQYTRLRKQVAAKKYLQSIKQKRY |
| 5 | Ac-HSDAVFTDQYTRLRKQLAVKKYLQDIKQGGT |
| 6 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKR |
| 7 | Ac-HSDAVFTDQYTRLRKQLAAKKYLQTIKQKRY |
| 8 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQTIKQKRY |
| 9 | Ac-HSDAVFTDQYTRLRKQMAAHKYLQSIKQKRY |
| 10 | Ac-HSDAVFTDQYTRLRKQMAAKHYLQSIKQKRY |
| 11 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKQKR |
| 12 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKQKR |
| 13 | Ac-HSDAVFTDQYTRLRKQMARKKYLQSIKQKR |
| 14 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKQKR |
| 15 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPQKR |
| 16 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIQQKR |
| 17 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIRQKR |
| 18 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQRR |
| 19 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKA |
| 20 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKF |
| 21 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKH |
| 22 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKI |
| 23 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKK |
| 24 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKL |
| 25 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKM |
| 26 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKP |
| 27 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKQ |
| 28 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKS |
| 29 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKT |
| 30 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKV |
| 31 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKW |
| 32 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKY |
| 33 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKQRI |
| 34 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKQRI |
| 35 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKQRI |
| 36 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPQRI |
| 37 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIRQRI |

FIG. 1a

| SEQ ID NO | Sequence |
|---|---|
| 38 | Ac-HSDAVFTDNYTRLRKQVAAKKYLQSIKQKRY |
| 39 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKRY |
| 40 | Ac-HSDAVFTDNYTRLRKQVAAKKYLQSIKQK |
| 41 | Ac-HTEAVFTDNYTRLRKQVAAKKYLQSIKQKRY |
| 42 | Ac-HSDAVFTDNYTRLRKQLAVKKYLQDIKQGGT |
| 43 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKR |
| 44 | Ac-HSDAVFTDNYTRLRKQLAAKKYLQTIKQKRY |
| 45 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQTIKQKRY |
| 46 | Ac-HSDAVFTDNYTRLRKQMAAHKYLQSIKQKRY |
| 47 | Ac-HSDAVFTDNYTRLRKQMAAKHYLQSIKQKRY |
| 48 | Ac-HSDAVFTDNYTRLRKQMAGKKYLQSIKQKR |
| 49 | Ac-HSDAVFTDNYTRLRKQMAKKKYLQSIKQKR |
| 50 | Ac-HSDAVFTDNYTRLRKQMARKKYLQSIKQKR |
| 51 | Ac-HSDAVFTDNYTRLRKQMASKKYLQSIKQKR |
| 52 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIPQKR |
| 53 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIQQKR |
| 54 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIRQKR |
| 55 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQRR |
| 56 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKA |
| 57 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKF |
| 58 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKH |
| 59 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKI |
| 60 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKK |
| 61 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKL |
| 62 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKM |
| 63 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKP |
| 64 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKQ |
| 65 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKS |
| 66 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKT |
| 67 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKV |
| 68 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKW |
| 69 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIKQKY |
| 70 | Ac-HSDAVFTDNYTRLRKQMAGKKYLQSIKQRI |
| 71 | Ac-HSDAVFTDNYTRLRKQMAKKKYLQSIKQRI |
| 72 | Ac-HSDAVFTDNYTRLRKQMASKKYLQSIKQRI |
| 73 | Ac-HSDAVFTDNYTRLRKQMAAKKYLQSIPQRI |
| 74 | Ac-HSDAVFTDNYTRLRKQMASKKYLQSIRQRI |

FIG. 1b

| SEQ ID NO | Sequence |
|---|---|
| 75 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKNKRY |
| 76 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKRY |
| 77 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKNK |
| 78 | Ac-HTEAVFTDQYTRLRKQVAAKKYLQSIKNKRY |
| 79 | Ac-HSDAVFTDQYTRLRKQLAVKKYLQDIKNGGT |
| 80 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKR |
| 81 | Ac-HSDAVFTDQYTRLRKQLAAKKYLQTIKNKRY |
| 82 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQTIKNKRY |
| 83 | Ac-HSDAVFTDQYTRLRKQMAAHKYLQSIKNKRY |
| 84 | Ac-HSDAVFTDQYTRLRKQMAAKHYLQSIKNKRY |
| 85 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKNKR |
| 86 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKNKR |
| 87 | Ac-HSDAVFTDQYTRLRKQMARKKYLQSIKNKR |
| 88 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKNKR |
| 89 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPNKR |
| 90 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIQNKR |
| 91 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIRNKR |
| 92 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNRR |
| 93 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKA |
| 94 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKF |
| 95 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKH |
| 96 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKI |
| 97 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKK |
| 98 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKL |
| 99 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKM |
| 100 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKP |
| 101 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKQ |
| 102 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKS |
| 103 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKT |
| 104 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKV |
| 105 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKW |
| 106 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKNKY |
| 107 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKNRI |
| 108 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKNRI |
| 109 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKNRI |
| 110 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPNRI |
| 111 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIRNRI |

FIG. 1c

| SEQ ID NO | Sequence |
|---|---|
| 112 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKQKRYC-PEG |
| 113 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKRYC-PEG |
| 114 | Ac-HSDAVFTDQYTRLRKQVAAKKYLQSIKQKC-PEG |
| 115 | Ac-HTEAVFTDQYTRLRKQVAAKKYLQSIKQKRYC-PEG |
| 116 | Ac-HSDAVFTDQYTRLRKQLAVKKYLQDIKQGGTC-PEG |
| 117 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKRC-PEG |
| 118 | Ac-HSDAVFTDQYTRLRKQLAAKKYLQTIKQKRYC-PEG |
| 119 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQTIKQKRYC-PEG |
| 120 | Ac-HSDAVFTDQYTRLRKQMAAHKYLQSIKQKRYC-PEG |
| 121 | Ac-HSDAVFTDQYTRLRKQMAAKHYLQSIKQKRYC-PEG |
| 122 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKQKRC-PEG |
| 123 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKQKRC-PEG |
| 124 | Ac-HSDAVFTDQYTRLRKQMARKKYLQSIKQKRC-PEG |
| 125 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKQKRC-PEG |
| 126 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPQKRC-PEG |
| 127 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIQQKRC-PEG |
| 128 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIRQKRC-PEG |
| 129 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQRRC-PEG |
| 130 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKAC-PEG |
| 131 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKFC-PEG |
| 132 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKHC-PEG |
| 133 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKIC-PEG |
| 134 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKKC-PEG |
| 135 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKLC-PEG |
| 136 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKMC-PEG |
| 137 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKPC-PEG |
| 138 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKQC-PEG |
| 139 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKSC-PEG |
| 140 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKTC-PEG |
| 141 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKVC-PEG |
| 142 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKWC-PEG |
| 143 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIKQKYC-PEG |
| 144 | Ac-HSDAVFTDQYTRLRKQMAGKKYLQSIKQRIC-PEG |
| 145 | Ac-HSDAVFTDQYTRLRKQMAKKKYLQSIKQRIC-PEG |
| 146 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIKQRIC-PEG |
| 147 | Ac-HSDAVFTDQYTRLRKQMAAKKYLQSIPQRIC-PEG |
| 148 | Ac-HSDAVFTDQYTRLRKQMASKKYLQSIRQRIC-PEG |

FIG. 1d

| SEQ ID NO | Sequence |
|---|---|
| 149 | HSDGIFTDSYSRYRKQMAVKKYLAAVLGKRYKQRVKNK (PACAP38) |
| 150 | HSDGIFTDSYSRYRKQMAVKKYLAAVL (PACAP27) |
| 151 | HSDAVFTDNYTRLRKQMAVKKYLNSILN (VIP) |
| 152 | HSDAVFTDQYTRLRKQVAAKKYLQSIKQKRY |
| 153 | Ac-HTDAVFTDQYTRLRKQVAAKKYLQSIKQKRY |
| 154 | HSDAVFTDQYTRLRKQVAAKKYLQSIKQKRYC-PEG |
| 155 | Ac-HTDAVFTDQYTRLRKQVAAKKYLQSIKQKRYC-PEG |

FIG. 1e